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IS : 619 - 1979
"Reaffirmed 1988"
(Reaffirmed 1990)
2009

Indian Standard

SPECIFICATION FOR
PRUNING AND SLASHING KNIVES,
HOOKED AND CURVED

(*Second Revision*)

UDC 631.342.2



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 6.00



January 1980

Indian Standard

SPECIFICATION FOR PRUNING AND SLASHING KNIVES, HOOKED AND CURVED (*Second Revision*)

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Indian Standard
SPECIFICATION FOR
PRUNING AND SLASHING KNIVES,
HOOKED AND CURVED
(*Second Revision*)

0. F O R E W O R D

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 27 August 1979, after the draft finalized by the Horticultural Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Pruning or slashing knife is a hook-shape or curved knife forged from one piece and fitted with handle secured firmly by metallic rivets. The knife is used mainly in tea plantations for the purpose of pruning tea shrubs.

0.3 This standard, covering the requirements of pruning and slashing knives, was first published in 1955. The standard was revised in 1961 mainly for changing the dimensions from FPS system to metric system. A need was felt to revise the standard to include additional material, updating of referred standards and incorporation of sampling for lot acceptance.

0.4 The figures given in the standard are meant for illustration and should not be considered as suggestive of any standard design.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies material, dimensions and other requirements of pruning and slashing knife, hooked and curved shape.

*Rules for rounding off numerical values (revised).

2. TYPE

2.1 For the purpose of this standard, the knives shall be of the following types:

- a) Pruning knife:
 - i) Hooked type:
 - i) Full length (*see* Fig. 1)
 - ii) Short length (*see* Fig. 2)
 - iii) Curved type (*see* Fig. 3)
- b) Slashing knife:
 - 1) Hooked type (*see* Fig. 4)
 - 2) Curved type (*see* Fig. 5)

3. MATERIAL

3.1 Blade — The blade shall be manufactured from high carbon steel, alloy steel or tool steel.

3.1.1 The chemical composition of the high carbon steel shall be as follows:

- a) Carbon 0.7 to 0.9 percent
- b) Silicon 0.1 to 0.4 percent
- c) Manganese 0.5 to 1.0 percent
- d) Sulphur 0.05 percent, *Max*
- e) Phosphorus 0.05 percent, *Max*

3.1.1.1 Some of the typical steels that may be used are: C 75, C 80 and C 85 (*see* IS : 1570-1961*).

3.1.2 Alloy steel preferably conforming to Grade 16 Ni Cr₂ Mo 20, 37Si2 Mn 90 or 37 Mn₂ of IS : 4367-1967† should be used.

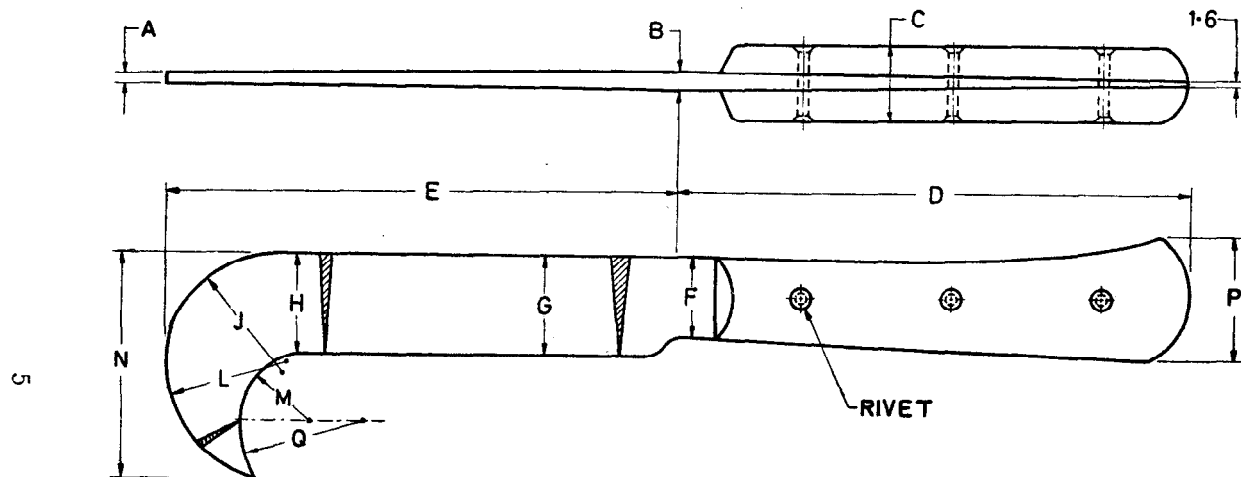
3.1.3 Tool steel preferably conforming to Grade T 75 or T 85 of IS : 4367-1967† should be used.

3.2 Tang — The material used for blade shall also be used for tang. However, mild steel (*see* IS : 226-1975‡) may also be used.

*Schedules for wrought steels for general engineering purposes.

†Specification for alloy and tool steel forgings for general industrial use.

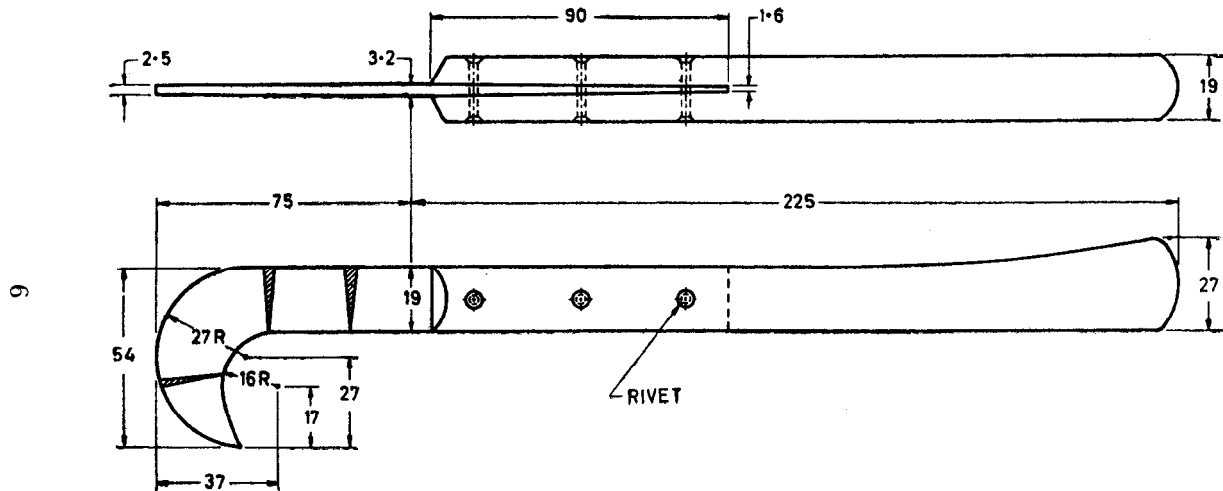
‡Specification for structural steel (standard quality) (*fifth revision*).



SIZE	A	B	C	D	E	F	G	H	J	L	M	N	P	Q
1	3.2	5.6	20	200	100	22	24	27	29	29	19	64	33	37
2	3.2	5.6	20	125	125	22	24	27	29	29	19	64	33	37
3	3.2	5.6	20	150	150	24	29	30	37	37	21	68	37	38
4	3.2	5.6	20	150	150	24	30	33	40	40	22	78	33	44
5	4.0	6.3	24	165	200	25	33	35	43	43	24	84	38	49
6	4.0	6.3	25	165	225	25	35	37	44	44	24	87	41	50

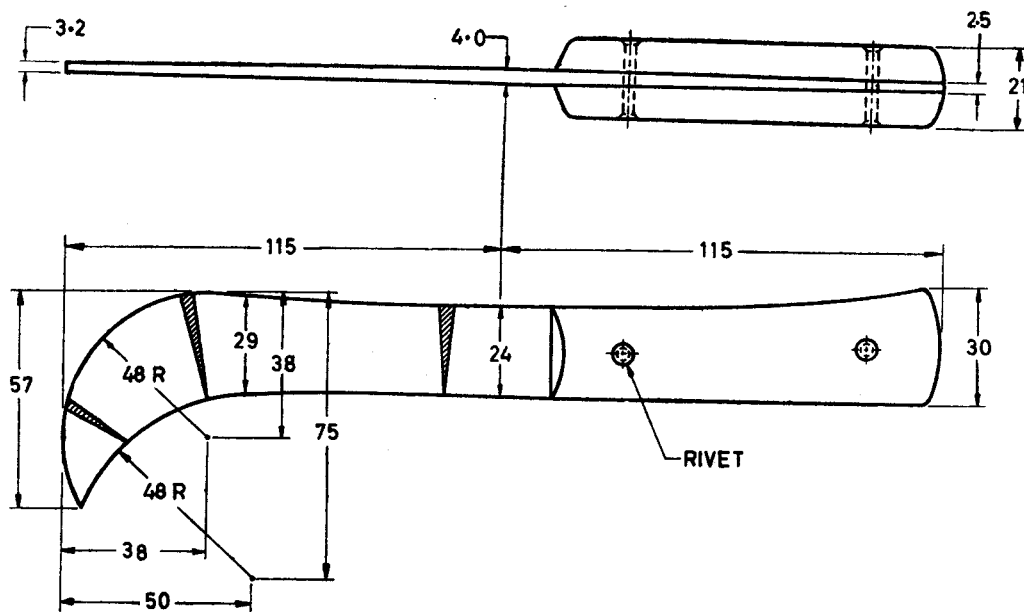
All dimensions in millimetres.

FIG. 1 PRUNING KNIFE, HOOKED TYPE, FULL LENGTH



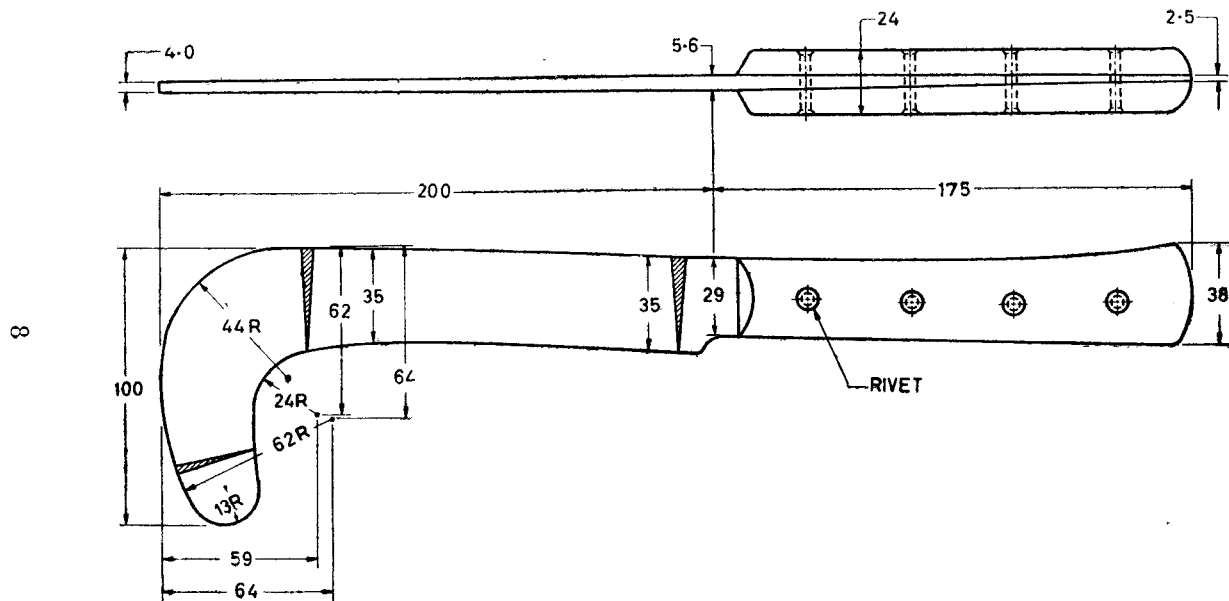
All dimensions in millimetres.

FIG. 2 PRUNING KNIFE, HOOKED TYPE, SHORT LENGTH



All dimensions in millimetres.

FIG. 3 PRUNING KNIFE, CURVED TYPE



All dimensions in millimetres.

FIG. 4 SLASHING KNIFE, HOOKED TYPE

3.3 Handle — Timber (*see* Appendix D of IS : 620-1975*) or PVC (*see* IS : 7328-1974†) shall be used.

3.4 Rivet — Copper (*see* IS : 4412-1967‡) or brass (*see* IS : 4413-1967§) shall be used.

4. HARDNESS

4.1 The cutting edge of the blade shall be heat-treated to have a hardness in range of 45 to 55 HRC (*see* IS : 1586-1968||) or equivalent Brinell or Vickers hardness. The hardness shall be tested within a distance of 10 mm from cutting edge.

5. DIMENSIONS AND TOLERANCES

5.1 The dimensions of pruning knife, hooked type of full length shall be as given in Fig. 1. The handle shall be secured with tang through 3 rivets of 3 to 6 mm diameter. The insertion of tang into handle shall be full.

5.2 The dimensions of pruning knife, hooked type of short length shall be as given in Fig. 2. The handle shall be secured with tang through 3 rivets of 3 to 6 mm diameter. The insertion of tang into handle shall be 90 to 100 mm.

5.3 The dimensions of pruning knife, curved type shall be as given in Fig. 3. The handle shall be secured with tang through 2 rivets of 3 to 6 mm diameter. The insertion of tang into handle shall be full.

5.4 The dimensions of slashing knife hooked and curved types shall be as given in Fig. 4 and 5 respectively. The handle shall be secured with tang through 4 rivets of 3 to 6 mm diameter. The insertion of tang into handle shall be full.

5.5 The permissible tolerances on nominal dimensions shall be as follows:

<i>Dimensions</i>	<i>Tolerances</i>
Overall length	± 3 mm
Thickness	± 0.5 mm
Other dimensions	± 1.5 mm

*Specification for general requirements for wooden tool handles (*third revision*).

†Specification for high density polyethylene materials for moulding and extrusion.

‡Specification for copper wire for general purposes.

§Specification for brass wire for general purposes.

|| Method for Rockwell hardness test (B and C scales) for steel (*first revision*).

6. OTHER REQUIREMENTS

6.1 The blade and the tang may be formed from one piece or from separate pieces.

6.2 The blade shall be forged to the shape. The surface of the cutting edge shall have a smooth finish with a sharp edge.

6.3 The tang shall be securely riveted. Under the rivet head on its both sides a circular or trapezoidal washer, preferably countersunk, a washer shall be provided (see Fig. 6).

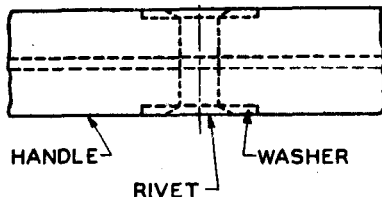


FIG. 6 LOCATION OF WASHER UNDER RIVET HEAD

6.4 The knife shall withstand the test given in 6.4.1.

6.4.1 The cutting edge of the knife shall be tested by striking 12 hard blows on a suitably shaped hard wood, like *Acacia Arabica* (babul), *Adina cardifolia* (haldu), *Tectona gradis* (teak), *Artocarpus heterophyllus* (kathal) or *Mangifera indica* (mango). At the end of the blows, the edge shall not show any sign of wear.

7. WORKMANSHIP AND FINISH

7.1 The knife shall be finished smooth and shall be free from cracks, burrs and sharp edges other than cutting edge.

7.2 Tang, if made of steel, shall be plated with nickel, zinc or cadmium.

7.3 The finished knife shall be given a coat of suitable mineral jelly or any other corrosion preventives (see IS : 1153-1975*).

8. MARKING AND PACKING

8.1 Marking — Each knife shall be marked with the following particulars:

- a) Manufacturer's name or recognized trade-mark,
- b) Size, and
- c) Batch and code number.

*Specification for temporary corrosion preventive, fluid, hard film, solvent deposited (first revision).

8.1.1 Each knife may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors may be obtained from the Indian Standards Institution.

8.2 Packing — The knife shall be packed, as agreed to between the purchaser and the supplier, for safe handling in transit.

9. SAMPLING FOR LOT ACCEPTANCE

9.1 Unless otherwise agreed to between the purchaser and the supplier, sampling of the knife for lot acceptance shall be done in accordance with 3 of IS : 7201-1974*.

9.1.1 The classification of different requirements of this specification for the purpose of testing for lot acceptance is given in the following clauses with guidance:

- a) *Dimensional and visual requirements* — See 5, 6 (except 6.4) and 7.
- b) *Requirements other than dimensional and visual* — See 4 and 6.4.

*Method of sampling of agricultural machinery and tractors.

INDIAN STANDARDS ON HORTICULTURAL EQUIPMENT

IS:

- 619-1979 Pruning and slashing knives, hooked and curved (*second revision*)
- 621-1978 Forks for plantations and estates (*first revision*)
- 2238-1979 Spades and *SEPRANGS* (*first revision*)
- 2559-1978 Garden rake (*first revision*)
- 2563-1978 Hedge shears, straight-edge type (*first revision*)
- 3092-1965 Rubber draining and tapping knife
- 3093-1965 Dah, jungle cutting
- 3094-1965 Bill-hook
- 3108-1965 Pruning saw, straight and curved
- 3122-1965 Budding and grafting knife, combined
- 3494-1978 Pruning secateur (*first revision*)
- 7825 Cylinder type hand lawn mower:
7825 (Part I)-1975 Wheel type
7825 (Part II)-1975 Roller type
- 8179-1976 Garden ditch hoe
- 8942-1970 Orchard ladder

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Printed at Arcee Press, New Delhi 110055